CLAIMS:

1. (Previously presented)A peptide antagonist of zonulin comprising an amino acid sequence SEQ ID NO:35, wherein said peptide antagonist binds to a zonula occludens toxin receptor, yet does not physiologically modulate the opening of mammalian tight junctions.

2. (Cancelled)

3. (Original) A method for treatment of a condition associated with breakdown of the blood brain barrier comprising administering to a subject in need of such treatment, a pharmaceutically effective amount of a peptide antagonist of zonulin, wherein said peptide antagonist comprises amino acid sequence SEQ ID NO:35, wherein said peptide antagonist binds to zonula occludens toxin receptor in the brain of said subject, yet does not physiologically modulate the opening of tight junctions in said brain.

4. (Previously presented) The method of claim 3 wherein the condition is cerebral ischemia.

5. (Previously presented) The method of claim 3 wherein the condition is stroke or cerebral edema.

6. (Previously presented) The method of claim 3 wherein the condition is hypertension.

7. (Previously presented) The method of claim 3 wherein the condition is convulsive seizure.

8. (Previously presented) The method of claim 3 wherein the condition is uremia.

9. (Previously presented) The method of claim 3 wherein the condition is meningitis.

10. (Previously presented) The method of claim 3 wherein the condition is encephalitis.

11. (Previously presented) The method of claim 3 wherein the condition is encephalomyelitis.

12. (Previously presented) The method of claim 3 wherein the condition is traumatic brain injury.

13. (Previously presented) The method of claim 3 wherein the condition is radiation brain injury.

14. (Previously presented) The method of claim 3 wherein the condition is multiple sclerosis.

15. (Previously presented) The method of claim 3 wherein the condition is or Guillain-Barre Syndrome.

16. A method for treatment of a condition associated with breakdown of the blood brain barrier comprising administering to a subject in need of such treatment, a pharmaceutically effective amount of a peptide antagonist of zonulin, wherein the peptide antagonist comprises 8 amino acid residues, wherein

(a) the 8 amino acid sequence of the peptide has the following motif:

(i) the first residue is non-polar;
(ii) the second residue is variable;
(iii) the third residue is non-polar;
(iv) the fourth residue is variable;
(v) the fifth residue is non-polar;
(vi) the sixth residue is polar;
(vii) the seventh residue is variable; and
(viii) the eighth residue is polar; and

(b) the peptide binds to a zonula occludens toxin receptor.

17. The method of claim 16 wherein the peptide does not physiologically modulate the opening of a mammalian tight junction.

18. The method of claim 16 wherein the first residue of the peptide antagonist is Val.

19. The method of claim 16 wherein the second residue of the peptide antagonist is Asn.

20. The method of claim 16 wherein the third residue of the peptide antagonist is Gly.

21. The method of claim 16 wherein the fourth residue of the peptide antagonist is Phe.

22. The method of claim 16 wherein the fifth residue of the peptide antagonist is Gly.

23. The method of claim 16 wherein the sixth residue of the peptide antagonist is Arg.

24. The method of claim 16 wherein the seventh residue of the peptide antagonist is Ile.

25. The method of claim 16 wherein the eighth residue of the peptide antagonist is Gly.

26. The method of claim 16 wherein

(a) the first residue of the peptide antagonist is Val;
(b) the fifth residue of the peptide antagonist is Gly; and
(c) the sixth residue of the peptide antagonist is Arg.

27. The method of claim 16 wherein the zonula occludens toxin receptor is in brain tissue.

28. The method of claim 16 wherein the peptide competitively inhibits zonula occludens toxin (ZOT) and zonulin from binding to the zonula occludens toxin receptor and from modulating the opening of the mammalian tight junction.